邮电中等专业学校教材

计算机英语

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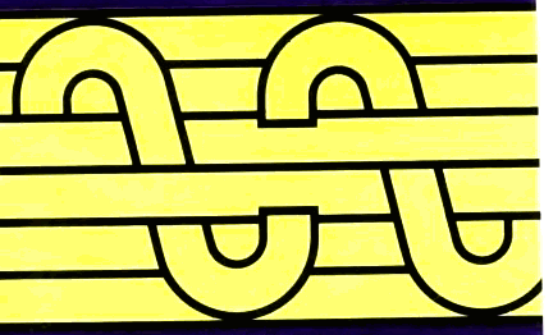

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前　言

随着邮电通信事业飞速发展，新技术、新理论、新装备日新月异。我司原组织编写的中专教材有些内容显得陈旧，难于适应新形势下教学的需要，为此我们对教学大纲进行了修订，并对原教材出版计划做了调整，重点突出了新技术方面的教材。今后将陆续出版。

教材是提高教学质量的关键。编写教材时力求以马列主义、毛泽东思想为指导，运用辩证唯物主义的观点阐明科学技术的规律，内容力求结合实际，提高学生的实践动手能力。

对于书中的缺点和错误之处，希望教师和同学们在使用过程中及时指出，以便修改提高。

邮电部教育司

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编者的话

随着科学技术的迅速发展，人类已进入“信息社会”，对计算机技术和通信技术的需求也更加迫切。为使科研人员、工程技术人员、应用开发人员、管理人员及大中专院校师生能够顺利地阅读专业技术英文资料，我们参照人事部《计算机软件资格和水平考试暂行规定与考试大纲》，参考了大量国内外最新资料和文献，经过教学实践和不断改进，编写了这本具有专业特点的《计算机英语》教材。

本书以方便教学和自学为编写原则，在选材与组织上兼顾了专业基础和专业技术最新发展与应用，包含了科技英语常用的语法、计算机和计算机通信专业的基础词汇，并安排了阅读指导、翻译指导及构词法等内容。力图使读者在掌握一定数量的专业词汇的同时了解一些专业知识，提高专业英语的阅读能力和翻译水平。全书共分十八个单元，内容广泛、取材丰富，涉及了计算机和计算机通信技术的主要领域及相关学科。其中包括：计算机的发展、硬件、软件、应用和计算机通信等内容。本书每个单元包括：课文、阅读指导（翻译指导或构词法）和两篇阅读材料等三部分。课文和阅读材料给出了简单的注释，编写了练习，并附有参考译文，所有课文和阅读材料都给出了词汇表。书末附有词汇索引总表。

本书中课文和阅读材料部分由马宪庆编译，阅读指导、翻译指导、构词法、课后注释及练习部分由常晓东编写。在本书的编写过程中得到了邮电部教育司杨荣同志、邮电部中专计算机通

信教学指导组的指导和帮助，同时得到吉林省邮电学校、浙江省邮电学校、北京市电信学校、天津市邮电学校、广东省邮电学校的大力支持，特别是在审定本书期间，杨荣、何寅生、高庭健、何体侨、方军、杨秋萍和傅纯等同志对书稿进行了全面的审阅并提出了许多宝贵意见；王立善同志为本书的编写提供许多宝贵的建议和资料，还有很多同志为本书的编写提供了帮助。在此，一并表示衷心的感谢。

由于时间仓促、水平有限，书中难免有错误和不妥之处，恳请读者提出宝贵意见，批评指正。

编者

1994 年

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UNIT 1

TEXT

Integrated Circuit

When semiconductors were first invented they were packaged individually as discrete transistors, diodes, etc. In 1958, however, the integrated circuit (IC) was invented. This is a complete electronic circuit containing transistors and perhaps diodes, resistors, and capacitors produced entirely on a single chip of silicon, and is often less than a tenth of an inch square①.

The advantages of integrated circuits over discrete components lie in their small size, low cost and high reliability. Without such miniaturization the personal computer would not have been possible, for not only does it reduce the physical dimensions to manageable proportions and save money on cabinets, wire and space , but small circuits consume less power and speed up calculations as the electrical signals don't have so far to travel②. This also simplifies the control of the various parts of the computer.

At first it was only possible to manufacture a few active elements in one integrated circuit, perhaps a maximum of

ten[3]. This was known as small scale integration circuit (SSI). Later, up to one hundred active elements on one chip were achieved and this was known as medium scale integration circuit (MSI). Now we can manufacture far more than this number in one integrated circuit and anything over one hunderd is konwn as large scale integration circuit (LSI). Thirty—thousand active elements have been manufatured on a quarter—inch—square chip and it is expected to be able to achieve one million by 1985. The term Very Large Scale Integration circuit (VLSI) is sometimes used for chips with thousands of active elements. You will be able to put this in its true perspective[4] if you realize that in the 1950s a typical electronic computer contained about 4000 valves and these had to be replaced at a rate of about forty a week. It used to be reckoned that the cost of a computer was proportional to the square of its power but with microcomputers this rule has been shattered. Personal computers today, costing less than one thousand pounds, are more powerful than computers costing many hundreds of thousands of pounds only a few years ago[5].

A large scale integrated circuit is a complete electronic circuit manufactured in one package. There are two basic types of integrated circuits. Those which amplify and are used in audio equipment and other linear circuits and those which switch and are used in microprocessors and other digital circuits.

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New Words

package ['pækidʒ] *n.* 插件,组件,程序包 *vt.* 封装,捆,打包
discrete [dis'kri:t] *a.* 分离的,分立的,不连续的,离散的
diode ['daioud] *n.* 二极管
integrated ['intigreitid] *a.* 集成的,综合的
chip [tʃip] *n.* 芯片,组件,孔屑,集成电路块 *v.* 切,刨,碎裂
reliability [ri,laiə'biliti] *n.* 可靠性
miniaturization [,minjətʃərai'zeiʃən] *n.* 小型化
dimension [di'menʃən] *n.* 面积,尺寸
manageable ['mæni'dʒəbl] *a.* 易管理的,易操纵的
cabinet ['kæbinit] *n.* 机柜,箱
active ['æktiv] *a.* 有源的,有效的,活动的
scale [skeil] *n.* 规模,标度,尺度
integration [,inti'greiʃən] *n.* 集成,综合,结合
medium [mi:djəm] *n.* 媒体,存储媒介,方法,平均值 *a.* 中等的
perspective [pə(:)'spektiv] *n.* 观点,远见,比例,透视
proportion [prə'pɔ:ʃən] *n.* 比,比例,均衡
reckon ['rekən] *vt.* 计算,估计
shatter ['ʃætə] *vt.* 使散开,吹散,破坏
amplify ['æmplifai] *vt.* 放大,增强
audio ['ɔ:diou] *a.* 音频的,听觉的
switch [switʃ] *n.* 开关,转换,切换 ,交换, 接线器
linear ['liniə] *a.* 直线形的,线性的
microprocessor ['maikrə,prəcesə] *n.* 微处理器
microcomputer ['maikroukəm'pju:tə] *n.* 微型计算机

Phrases and Expressions

discrete component 分立元件
active element 有源元件
personal computer 个人计算机
be proportional to 与……成比例
linear circuit 线性电路

Acronyms and Abbreviations

IC:Integrated Circuit 集成电路
SSI:Small Scale Integration Circuit 小规模集成电路
MSI:Medium Scale Integration Circuit 中规模集成电路
LSI:Large Scale Integration Circuit 大规模集成电路
VLSI:Very Large Scale Integration Circuit 超大规模集成电路

Notes to the text

1. This is a complete electronic circuit containing transistors and perhaps diodes, resistors, and capacitors produced entirely on a single chip of silicon, and is often less than a tenth of an inch square .

这是一种完整的电子电路,其中含有晶体管,或者就是二级管,以及电阻、电容等,并全部制造在一块不足 0.1 平方英寸的硅片上。

1) 句中 containing 是现在分词作定语,修饰 circut,pro-

duced 是过去分词作定语，修饰 transistors，resistors and capacitors.

2) and 后面的 is 与前面的 is 是并列的。

3) a tenth of an inch square 意为"十分之一平方英寸"。

2. Without such miniaturization the personal computer would not have been possible for not only does it reduce the physical dimensions to manageable proportions and save money on cabinets, wire and space, but small circuit consume less power and speed up calculation as the electrical signals don't have so far to travel.

没有这种小型化就不可能有个人计算机，因为这种小型化不仅缩小了机器的尺寸，使之灵活易操作，而且节省了机柜、线料和空间等方面的费用，降低了成本，同时，由于电路小、耗能低，并用电信号传递距离短而加快了运算速度。

1) for 引起的并列句表示原因。

2) not only...but also 是并列连词，意为"不仅...而且...."。

not only 位于句前，句子倒装。

3) as 引起原因状语从句。

3. At first it was only possible to manufacture a few active element in one integrated circuit perhaps a maximum of ten.

最初，在一块集成电路芯片里只能包含几个有源元件，至多不超过 10 个。

a maximum of ten = no more than ten

4. You will be able to put this in its true perspective.

你将会正确看待集成电路的价值。

5. Personal computers today, costing less than one thousand

pounds, are more powerful than computers costing many hundreds of thousand only a few years ago.

当今的个人计算机成本不超过 1000 英镑，但其功能远比几年前造价为数十万英镑的计算机的功能强。

句中两个 costing 引起的短语都作定语。

Exercises

Ⅰ. Answer the following questions

1. What are semiconductors and integrated circuits ?
2. What are the advantages of integrated circuits ?
3. By 1985, how many active elements could be manufactured on a quarter—inch—square chip ?
4. Why do you say that miniaturization is the key to developing the personal computer ?
5. What does the term Very Large Scale Integrated Circuit mean ?
6. If you realize that in the 1950s a typical electronic computer contained 4000 valves and these had to be replaced at a rate of about forty a week, what will happen ?
7. Why is today's computer cheaper than before ?

Ⅱ. The following passage adopted from the text has some words left out from it. Supply the missing words.

In 1958, however, the integrated _____(IC) was invented. This is a complete electronic circuit ____ transistors and diodes, resistors and capacitors, and is often ____ than a tenth of an inch square.

_____ such miniaturization, the computer would not have been possible, ____ not only does it ____ the physical dimensions to manageable ____ and save money on cabinets, wire and space, ____ small ones consume less energy and increase the ____ of calculations.

A large scale intergrated circuit is a ____ electronic circuit made in one ____. There are two types of integrated circuits, Those amplifying circuits are _____ in audio equipment and other linear circuits. The _____ circuits are used in microprocessors and other ____ circuits.

Ⅱ. Change the underlined parts with the words given, paying special attention to their forms.

better position; no more than; easily control; cut down; package; increase the speed of; reach; in proper proportion; at the speed of ; know

1. When semiconductors were first invented, they were encased individually as discrete transistors.
2. The advantages of integrated circuits over discrete components lie in their small size, low cost and high reliability.
3. As a complete electronic circuit, IC is often less than a quarter of an inch square.
4. The miniaturization of IC reduces the physical dimensions to manageable proportions and save money on cabinets, wire and space.
5. Small circuits consume less power and speed up calculations.
6. Up to one hundred active elements on one chip were

achieved and this was known as medium scale integration.

7. It used to be reckoned that the cost of a computer was proportional to the square of its power.
8. You will be able to put this in its true perspective if you realise in 1950s a typical electronic computer contained 4000 valves and these valves had to be replaced at a rate of about 40 a week.

Ⅳ. Translate the following into Chinese.

1. active components
2. medium scale integration circuits
3. digital circuits
4. to put this in its true perspective
5. a single chip of
6. at a rate of

阅读指导(1)
科技英语阅读概念

阅读是获取信息的重要途径,对于科技人员来尤为重要。因此阅读能力的大小决定了获取知识的能力。由于阅读的内容和目的不同,所需采取的阅读方法也不同。常用的阅读方法有通读、细读两种。

通读是为了弄懂大意,了解梗概。这需要读者具备较扎实的英语基础知识和初步的阅读能力,对科技工作者来说,还必须具备一定的专业知识和专业词汇量。

细读是为了深刻理解并且掌握牢记其具体内容。这两种方法在阅读中常常交替使用。往往是先通读一遍,找到自己所需要的内容后,再进行深入仔细的阅读。

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